

TYPHOON JUDY (11W)

The second of two typhoons to develop during the month of July, Judy formed just west of Guam in the monsoon trough and followed a north oriented track with a critical turn to the northwest, just to the south of Honshu. It crossed the southern coast of Kyushu, made landfall on the south coast of the Korean Peninsula and dissipated rapidly.

As Tropical Storm Hope (09W) weakened over China, two tropical cyclones developed in the monsoon trough which was located near 10° north latitude. First, on July 20, Tropical Storm Irving (10W) developed in the South China Sea. The following day Judy developed 300 nm (555 km) west of Guam. The disturbance that was to become Judy was first mentioned on the Significant Tropical Weather Advisory at 200600Z as a slowly moving tropical disturbance with a poor potential for further development. The potential was upgraded to fair the following day. At 212000Z, JTWC issued a Tropical Cyclone Formation Alert based on synoptic data that

indicated a low-level cyclonic circulation beneath an upper-level anticyclone and satellite imagery that showed increased convection and organization.

As the disturbance's organization and upper-level outflow continued to improve, the first warning followed for Tropical Depression 11W at 220600Z when satellite intensity analysis indicated surface winds of 25 kt (13 m/sec). A cyclonic circulation in the Tropical Upper Tropospheric Trough (TUTT)(Sadler, 1976) to the northwest of the depression provided a source of upper-level divergence needed for further intensification. At 230000Z, the depression was upgraded to tropical storm intensity when satellite analysts estimated 35-kt (18-m/sec) surface winds were present. Judy continued to intensify as the system stayed southeast of the TUTT low, a favorable position for development. At 250600Z, it was again upgraded — this time to a typhoon (Figure 3-11-1). Although most ships avoided Judy's dangerous winds, the moored buoy (WMO

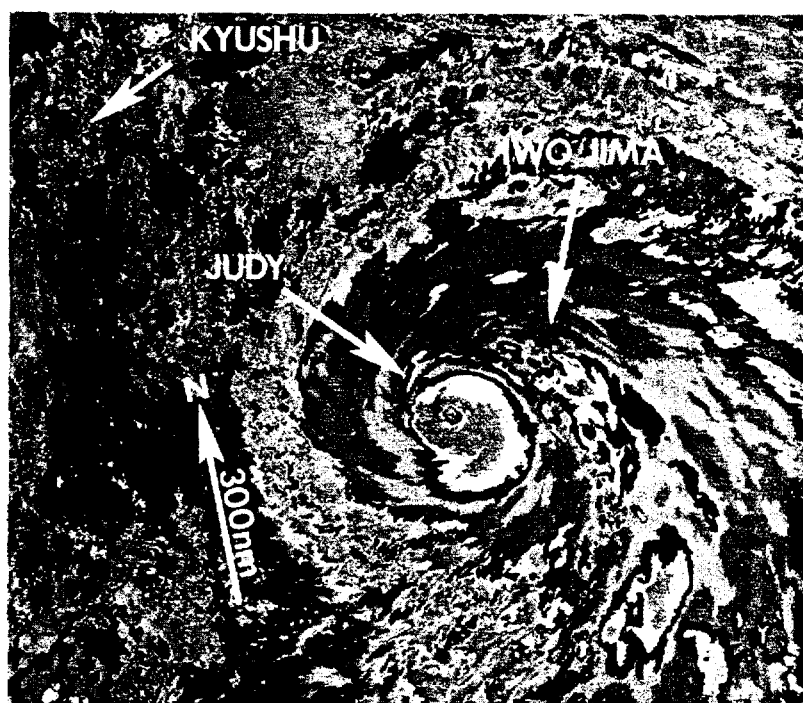


Figure 3-11-1. Judy approaching peak intensity (250945Z July DMSP enhanced infrared imagery).

21004) at 29° north latitude and 135° east longitude provided valuable data to track Judy. Fifty-seven-knot (29 m/sec) winds and a minimum sea-level pressure of 974 mb were recorded as the typhoon passed close by.

Using NOGAPS and satellite data as a guide, JTWc forecast Judy to track northward to Japan and then recurve to the northeast. In contrast, OTCM guidance suggested a northwestward track from the start. When the subtropical ridge did finally build in from the east, OTCM was discounted since all the previous model guidance (Figure 3-11-2)

indicated a northwest track while Judy tracked north. By comparison, Figure 3-11-3 shows JTWc's initial success with the track forecasts. However, after the direction change on 26 July, it took a day for the forecasts to get back on track to the northwest. This situation highlighted the value of the alternate scenario and rapid communications between the customer and the forecaster when forecast difficulties arise.

Judy's interaction with the southern coast of Kyushu at 271800Z resulted in rapid weakening. This trend continued until the

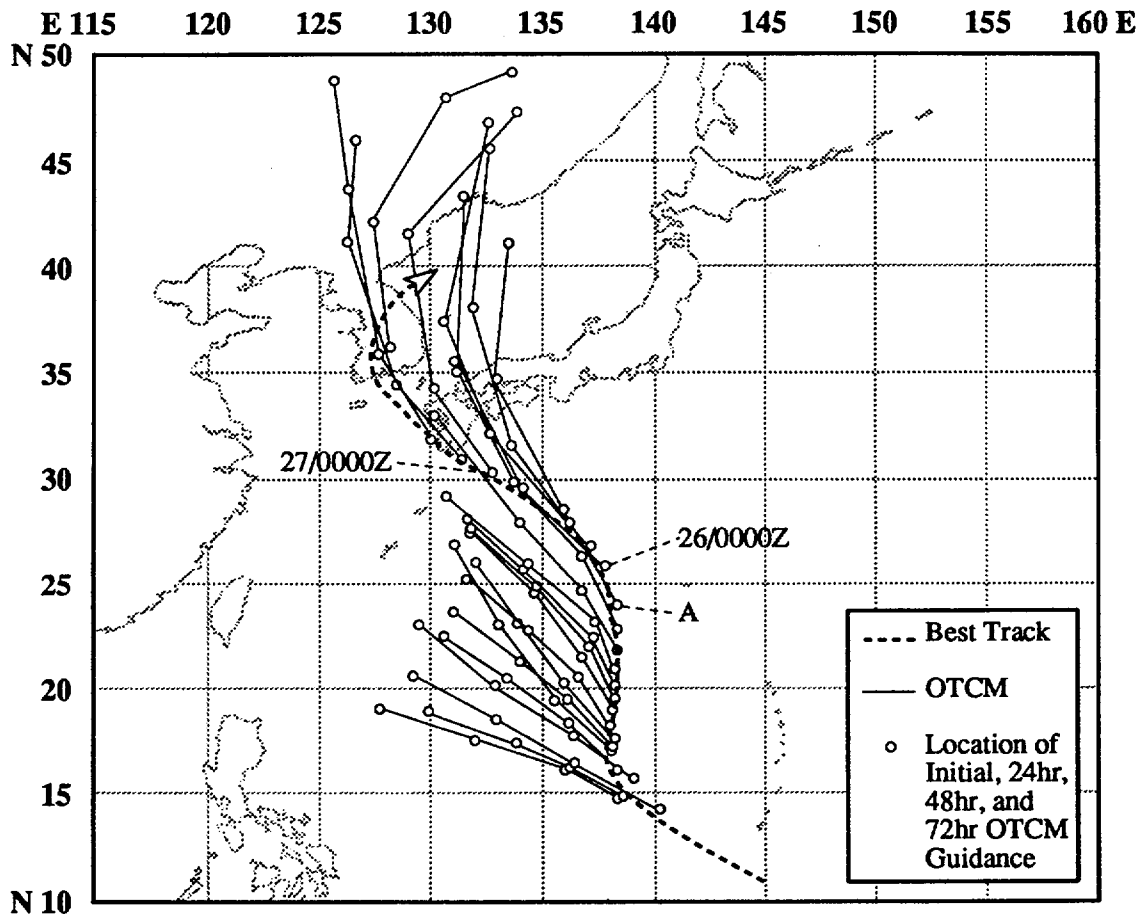


Figure 3-11-2. Comparison of OTCM guidance with the best track. After 251800Z July (point A), the guidance proved correct.

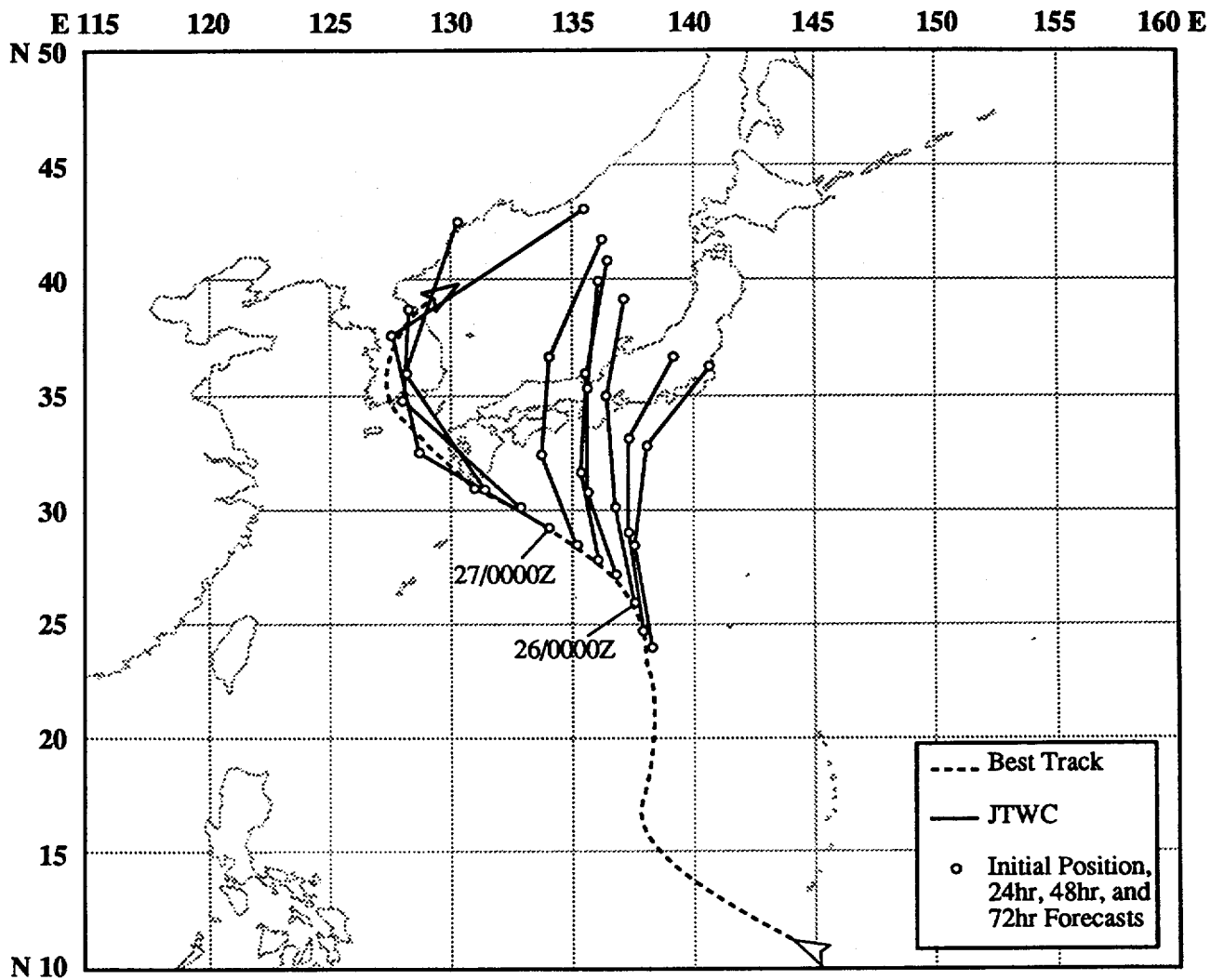


Figure 3-11-3. JTWC forecasts compared with the best track. The major track change to the northwest on 26 July was not reflected in the forecasts until the next day.

tropical cyclone (Figure 3-11-4) made landfall approximately 110 nm (205 km) southwest of Pusan, Korea. By the time Judy reached Osan AB near Seoul, it had weakened significantly. Osan AB (WMO 47122) reported maximum

winds of 22 kt (11 m/sec). At 290000Z, the final warning was issued as the remnants of the system moved towards the Sea of Japan. No reports of damage were received.

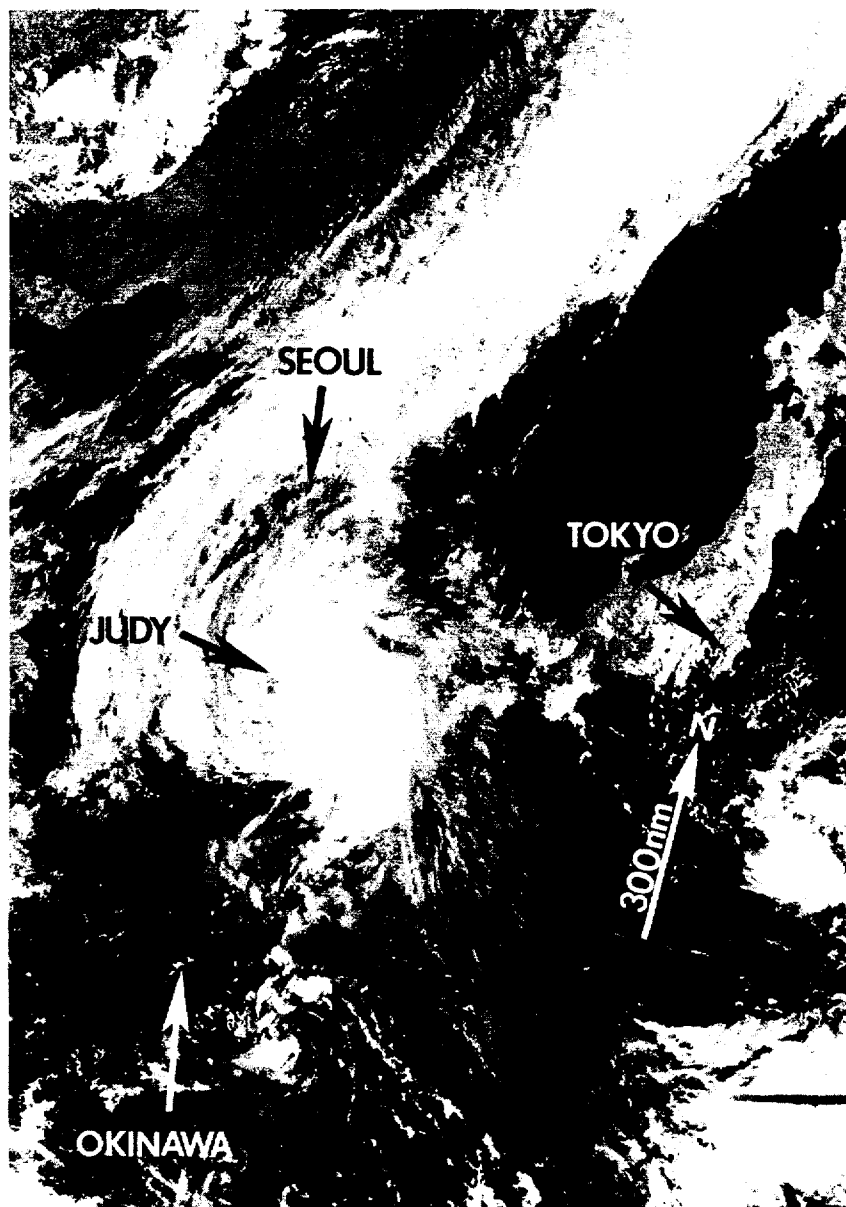


Figure 3-11-4. In the Korea Straits, Judy is about to be downgraded to a tropical storm (280430Z July DMSP visual imagery).